

Amendments to the Claims:

Please cancel claims 1 - 23 without prejudice or disclaimer of the subject matter contained therein and add the following new claims.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 - 23 (canceled)

24. (new) A plasma processing apparatus for processing a sample disposed inside of a vacuum chamber using a plasma generated therein comprising:

a sample stage disposed inside of the vacuum chamber on which the sample is located;

a plate disposed at an upper side portion of the sample stage parallelly opposing thereto inside of the vacuum chamber, wherein the plate faces to the plasma generated inside the space of the vacuum chamber between the plate and the sample stage and electric power is supplied for generating the plasma;

a member disposed at an upper side portion of the plate and on the plasma facing side of which the plate is disposed;

an optical transmitter mounted with respect to the member disposed at the upper side portion of the plate which is disposed inside of the vacuum chamber so that an end face of the optical transmitter is almost in contact with or spaced apart from a back of the plate at an opening of a through-hole in the plate having a smaller diameter than a diameter of the optical transmitter which receives light from the vacuum chamber via the through-hole; and

a holder disposed at the upper side portion of the plate which holds the optical transmitter with respect to the member.

25. (new) A plasma processing apparatus according to claim 24, wherein a diameter-depth ratio of the through-hole in the plate is in a range of 5 to 100.

26. (new) A plasma processing apparatus according to claim 24, wherein the member disposed at the upper portion of the vacuum chamber is a flat plate member which is disposed in parallel with the sample opposed thereto.

27. (new) A plasma processing apparatus according to claim 24, wherein the electric power supplied to the member is provided to the plate.

28. (new) A plasma processing apparatus according to claim 25, wherein the electric power supplied to the member is provided to the plate.

29. (new) A plasma processing apparatus according to claim 26, wherein the electric power supplied to the member is provided to the plate.

30. (new) A plasma processing apparatus provide with a vacuum chamber inside of which an upper plate and a lower electrode are disposed substantially in parallel and in opposition to each other a sample which is located on the lower electrode is processed using a plasma generated in a space between the upper plate and the lower electrode, comprising:

an power source which provides radio frequency electric power to the lower electrode;

an optical transmitter mounted with respect to the vacuum chamber so as to be disposed at an upper side portion of the upper plate with an end face of the optical transmitter being almost in contact with or spaced apart from the back of the upper plate at an opening of a through-hole of the upper plate having a smaller diameter than a diameter of the optical transmitter which receives light from the vacuum chamber via the through-hole, wherein the upper plate faces the plasma; and

a holder disposed at the upper side portion of the upper plate which holds the optical transmitter with respect to the vacuum chamber.

31. (new) A plasma processing apparatus according to claim 30, wherein a diameter-depth ratio of the through-hole in the upper plate is in a range of 5 to 100.

32. (new) A plasma processing apparatus according to claim 30, further comprising a disk formed member disposed at the upper side portion of the upper plate and on the plasma facing side of which the upper plate is disposed, wherein the electric power for generating the plasma is supplied to the upper plate via the disk formed member.

33. (new) A plasma processing apparatus according claim 32, wherein the disk formed member is mounted with respect to the vacuum chamber.

34. (new) A plasma processing apparatus according to claim 31, further comprising a disk formed member disposed at the upper side portion of the upper plate and on the plasma facing side of which the upper plate is disposed, wherein the electric power for generating the plasma is supplied to the upper plate via the disk formed member.

35. (new) A plasma processing apparatus according claim 34, wherein the disk formed member is mounted with respect to the vacuum chamber.